



FACSIMILE TRANSMITTAL SHEET

TO: RJ Rivera Assoc. FROM: Andrew Hawkins
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 PHONE NUMBER: [REDACTED] SENDER'S FAX NUMBER: (512) 477-6410
 RE: NB Outer Loop Study SENDER'S PHONE NUMBER: (512) 477-2320
Comments

URGENT FOR REVIEW PLEASE COMMENT PLEASE REPLY PLEASE RECYCLE

NOTES/COMMENTS:



Member Organizations

Alamo Group of the Sierra Club
 Aquifer Guardians in Urban Areas
 Austin Regional Sierra Club
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 San Geronimo Watershed Alliance
 San Marcos Greenbelt Alliance
 San Marcos River Foundation
 Santuario Sisterfarm
 Save Barton Creek Association
 Save Our Springs Alliance
 Scenic Loop/Boerne Stage Alliance
 Sisters of the Divine Providence
 Smart Growth San Antonio
 SEED Coalition
 Texas Water Alliance
 Travis County Green Party
 West Texas Springs Alliance
 Wimberley Valley Watershed
 Association

July 9, 2007

New Braunfels Outer Loop Study

RJ Rivera Associates, Inc.

Email: info@nbolstudy.com

Fax: (210) 340-5664

VIA FAX AND EMAIL

Re: Comments on Proposed Corridor for New Braunfels Outer Loop

Dear RJ Rivera Associates,

Please accept these comments on behalf of the Greater Edwards Aquifer Alliance (GEAA). GEAA is a non-profit coalition of organizations across the Edwards Aquifer united to preserve the water, wildlife, scenic beauty, and cultural heritage of the Edwards Aquifer and the Texas hill country.

The proposed corridor is a 40-mile band around the City of New Braunfels, encompassing portions of Comal and Guadalupe Counties. In the early stages of this planning effort, two crucial considerations must be recognized with respect to the proposed corridor: 1) the western and northern portions run through the highly-sensitive Edwards Aquifer recharge zone, and 2) the northern portion, and possibly other portions, run through prime habitat of the endangered golden-cheeked warbler. The utility of the loop and its segments must be balanced against the destructive effects that a road will have on the recharge zone and endangered species such as the warbler.

GEAA strongly opposes any road expansion or construction in the recharge zone or in any warbler habitat. We believe growth and congestion in and around New Braunfels can be adequately managed without planning for an entire loop or building segments that would be destructive to environmentally sensitive areas.

We realize that certain segments of the loop may not be built for a long time, and that the identification of a corridor is a preliminary planning exercise that is far away in time from construction. Nonetheless, we feel that these environmental issues are crucial to point out and examine before the corridor is narrowed and further defined. We hope that these comments will help to guide the study by offering information on the recharge zone and warbler habitat, and the effects that a new road would have on these areas.

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1) Edwards Aquifer Recharge Zone Considerations

Since 1975, the San Antonio segment of the Edwards Aquifer has been designated as the principal source of drinking water for San Antonio and the surrounding areas. That means that, currently, the Edwards is the sole drinking water supply for over one million people.

In designating the Edwards as a sole-source aquifer, the EPA administrator noted that the Edwards "is vulnerable to contamination through its recharge zone, particularly from streams crossing the zone."¹ Since contamination of a ground water aquifer is difficult or impossible to reverse, the Administrator found that "contamination of the Edwards Underground Reservoir would pose a significant hazard to those people dependent on the reservoir for drinking purposes."²

The Edwards Aquifer Recharge Zone is marked by outcrops of porous and permeable Edwards Limestone (also known as karst limestone) that are exposed to the surface. This exposed rock features numerous caves, sinkholes, faults and fractures formed where rainfall and creek and stream flows have dissolved large amounts of the limestone such that surface water rapidly flows and percolates into the underground Edwards Aquifer. Due to the highly permeable nature of the recharge zone, the Aquifer is particularly vulnerable to pollution from runoff. For this reason, it is well recognized that the recharge zone is among the most environmentally sensitive areas in Texas.³

The recharge zone in the western portion of the proposed corridor has already been severely altered by the many quarries that are being operated in this area. It is easy to identify the dramatic effect the quarries have had on the landscape by looking at any aerial imaging of the western portion of the proposed corridor. Quarries are largely unregulated in Texas; the TCEQ only requires storm water discharge permits, and air quality permits for rock crushers. Unregulated mining of aquifer limestone, pollution and pumping of groundwater, and added dust and traffic impacts from infrastructure and vehicles, are issues that go largely unaddressed under the TCEQ's current regulatory scheme. Air quality in the areas of these quarries is a major concern, and adding a road in this area will augment negative impacts in the immediate and surrounding areas. In addition, the San Antonio area, covering Bexar, Comal, and Guadalupe counties, already struggles to keep in attainment.

¹ 40 Fed. Reg. 58,344 (Dec. 16, 1975).

² *Id.*

³ Texas Water Development Board, *Aquifers of Texas* 14 (Nov. 1995) ("The aquifer feeds several well-known recreational springs and underlies some of the most environmentally sensitive areas in the state."); Edwards Plateau Ecoregional Planning Team, The Nature Conservancy, *A Biodiversity and Conservation Assessment of the Edwards Plateau Ecoregion 1-2* (2004) ("The Edwards Plateau is truly a unique place, even from a global perspective. . . . It is this varied ecological setting that makes the Edwards Plateau one of the most diverse biological regions in the world.").

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Roads strongly affect surrounding ecosystems.⁴ Whenever a road is built or expanded, there are three types of resulting impacts: construction impacts, operational and maintenance impacts, and long-term impacts, each with its own distinctive spatial and temporal frame and each with distinctive but cumulative impacts.⁵ At this point in the planning process, it is not necessary to specifically discuss the many impacts that would result from building a segment of the proposed New Braunfels Outer Loop in the recharge zone. However, planners should be aware of the extreme sensitivity of the recharge zone and the cumulative impacts to its ecosystem that would be worsened by a new road.

2) Warbler Habitat Considerations

Past and future highway construction has been identified as a specific threat to the endangered golden-cheeked warbler.⁶ Roads destroy and fragment warbler habitat. In the case of the proposed New Braunfels Outer Loop, the corridor being studied has been placed in the area of prime warbler habitat to the north of the city. This habitat's integrity is already threatened by an LCRA transmission line. Adding a road to the area would inevitably result in total fragmentation and loss of warbler habitat.

In 1990, United States Fish and Wildlife Service (FWS) placed the golden-cheeked warbler (*Dendroica chrysoparia*) on the endangered species list because of accelerated habitat loss in the species' limited breeding range and other threats (55 FR 53153).⁷ The warbler's breeding range consists of mature Ashe juniper (*juniperus ashei*)-oak woodlands that grow along steep, moist canyons, as well as drier, upland areas within 26-38 counties in the Edward's Plateau, Lampasas Cut Plain, and Llano Uplift regions of Texas (USFWS 1992, Ladd and Gass 1999). For breeding, the warbler also requires closed canopies ($\geq 50\%$), stands at least 10 ft high, stem densities from 140-776 stems/acre, and ready access to water and strips of bark from mature Ashe juniper (Wahl et al. 1990, USFWS 1996, Ladd and Gass 1999). Such restrictive requirements make the golden-cheeked warbler vulnerable to threats such as habitat loss and fragmentation. For instance, from 1962 to 1990, 35% (326,355 acres) of available warbler habitat was destroyed, and the rate of habitat loss has steadily increased because warbler habitat is commonly cleared for grazing and cedar products (Pulich 1976, Kroll 1980, Wahl et al.

⁴ See generally Paul L. Angermeier, Andrew P. Wheeler, and Amanda E. Rosenberger, *A Conceptual Framework for Assessing Impacts of Roads on Aquatic Biota*, Fisheries 19, 21-23 (Dec. 2004); Reed Noss, *The Ecological Effects of Roads – or – the Road to Destruction*, at <http://www.wildlandscpr.org/resource/library/reports/ecoleffectsroads.html>; Michael E. Barrett, et al., *A Review and Evaluation of Literature Pertaining to the Quantity and Control of Pollution from Highway Runoff and Construction (CRWR Online Report 95-5)* (Center for Research in Water Resources April 1995); Caltrans, *A Review of the Contaminants and Toxicity Associated with Particles in Stormwater Runoff* (August 2003); Richard T. T. Forman, et al., *Road Ecology: Science and Solutions* 202-07 (2003).

⁵ Angermeier, *supra* note 4, at 21-23.

⁶ United States Dept. of Fish and Wildlife, *Endangered and Threatened Wildlife and Plants; Final Rule to List the Golden-cheeked Warbler as Endangered*, 55 Fed. Reg. 53,153, 53,157 (Dec. 27, 1990).

⁷ Subsequently, in 1991, Texas Parks and Wildlife added the warbler to their endangered species list (Executive Order No. 91-001).

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1990, Campbell 1995). Other historical threats include cowbird parasitism and diminished deciduous species recruitment due to oak wilt, over-browsing, and over-grazing (Pulich 1976, Wahl et al. 1990, USFWS 1992, Engels and Sexton 1995).

Despite current conservation efforts, urbanization in the form of residential development and reservoir construction continues to threaten the warbler through the continued loss of juniper-oak woodland (USFWS 1996, Ladd and Gass 1999). Roads that are set to be expanded, such as U.S. 281 and Loop 1604 in Bexar County, SH 46 in Comal County, RR 12 in Hays County, and U.S. 290 and SH 71 in Travis County, among others, will foster urban growth and habitat fragmentation in outlying unincorporated areas that have no zoning controls to regulate such growth.

Such expansive road building, though, exhibits impacts beyond just habitat clearing. For instance, the injection of so many people and so many roads into warbler habitat increases the risk of wildfires. Noss (2006) reports that humans are suspected to cause at least 90% of wildfires in the United States, over half of which begin along roads. For instance, Noss (2006) reports that in one account, 78% of all anthropogenic fires occurred with 265 feet of a road; in another 75% of all forest fires were traced to roadsides. Such fires can be disastrous in warbler habitat, which is especially vulnerable to fire. Additionally, these roadways increase water pollution and air pollution that indirectly affect the warblers' chances of survival and recovery.

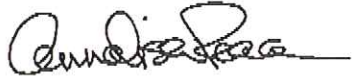
These impacts directly affect the species' survival and recovery. Magness et al. (2006) reported landscape composition exceeding 40% woodland as the single most important variable predicting golden-cheeked warbler occurrence, and although measures of habitat fragmentation were poor predictors of warbler occurrence in this study, others have reported low pairing success and productivity associated with fragmentation (Benson 1990, Engels and Sexton 1995, Moses 1996, Coldren 1998, Rappole et al. 2003). Close proximity to urban development and human disturbance has been associated with increased territory size and distance to edge, decreased patch occupancy, and increased nest predation due to predators from urban environments (Coldren 1998, Engels and Sexton 1995). Both Arnold et al. (1996) and Coldren (1998) found evidence that suggests there is a minimum patch size requirement for the golden-cheeked warbler, and Lindsay (2006) stressed the importance of adequate connectivity among golden-cheeked warbler populations to ensure sufficient gene flow.

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In light of the above impacts to warbler habitat that would be worsened by a new road, the New Braunfels Outer Loop study should seek to avoid furthering any fragmentation of warbler habitat.

Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Annalisa Peace", with a horizontal line extending to the right.

Annalisa Peace
Executive Director
Greater Edwards Aquifer Alliance

Andrew Hawkins
Staff Attorney
Save Our Springs Alliance